

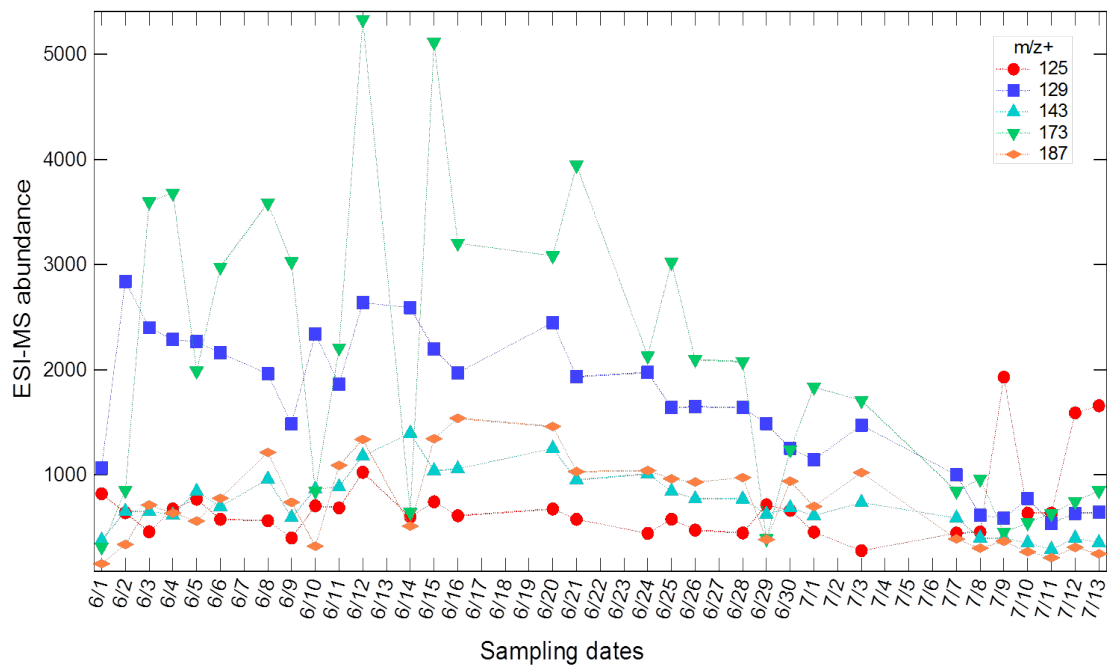
## Supplementary Information

### Identifying precursors and aqueous organic aerosol formation pathways during the SOAS campaign

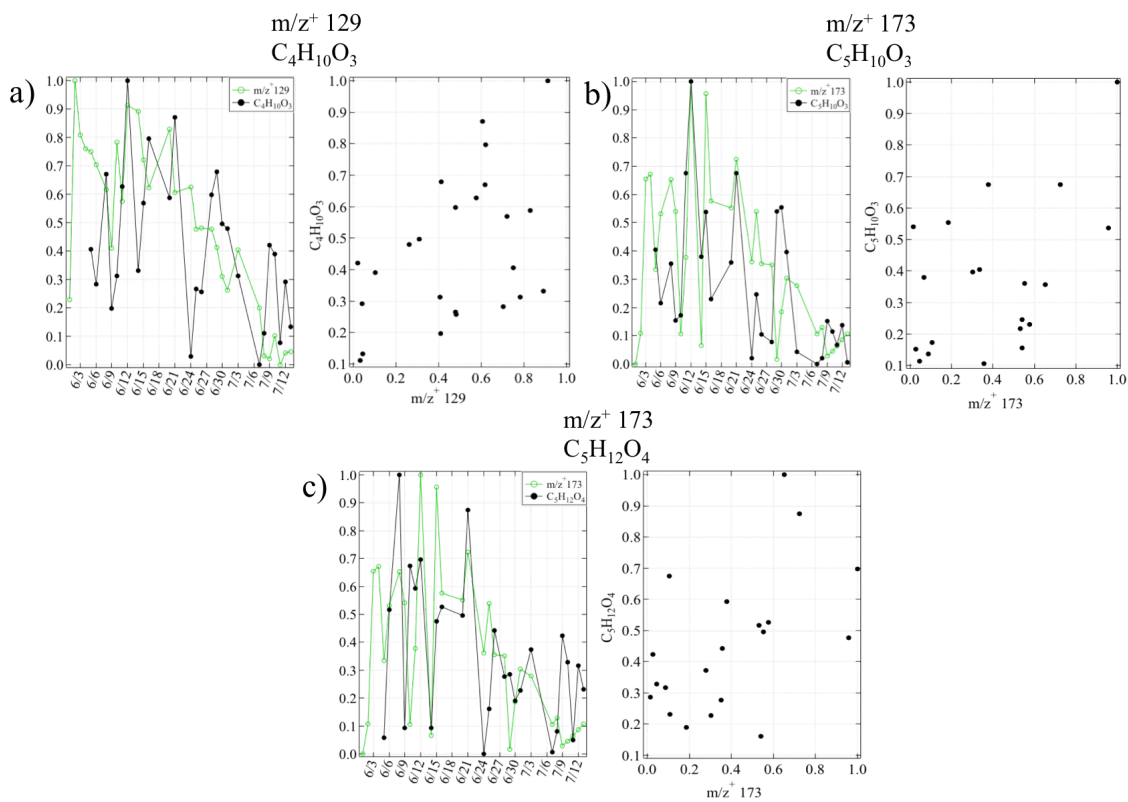
Neha Sareen<sup>1</sup>, Annmarie G. Carlton<sup>1</sup>, Jason D. Surratt<sup>2</sup>, Avram Gold<sup>2</sup>, Ben Lee<sup>3</sup>, Felipe D. Lopez-Hilfiker<sup>3, a</sup>, Claudia Mohr<sup>3, b</sup>, Joel A. Thornton<sup>3</sup>, Zhenfa Zhang<sup>2</sup>, Yong B. Lim<sup>1, c</sup>, Barbara J. Turpin<sup>2\*</sup>

Supplementary Table S1: TOC content of sampling days

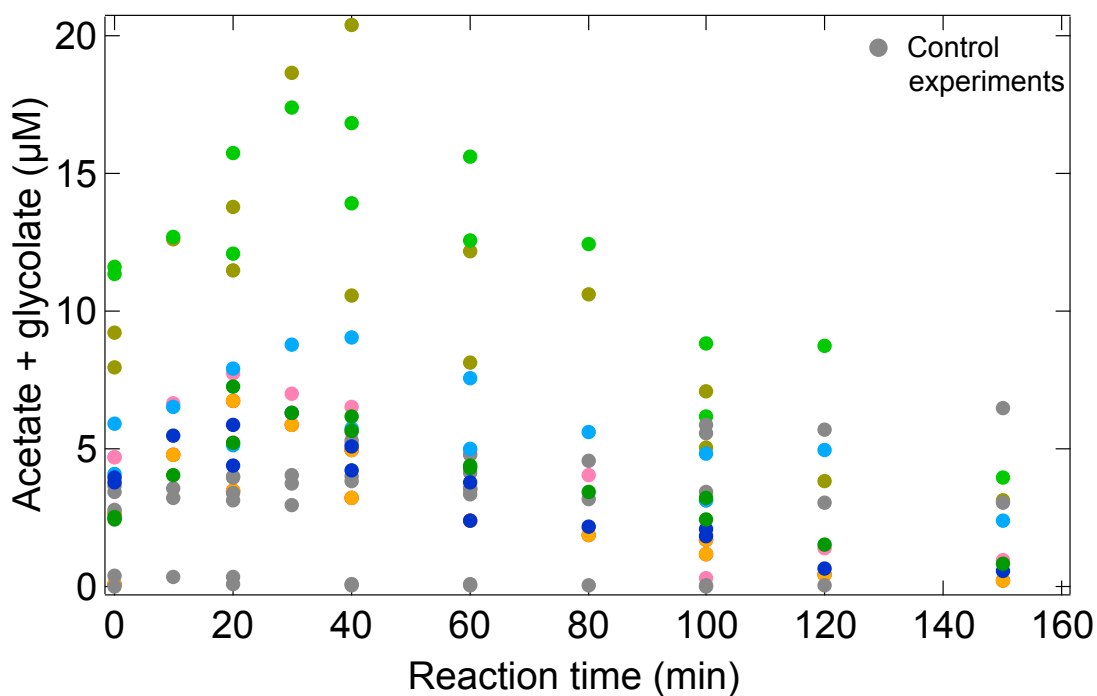
				Intensive	
Collection date	$\mu\text{M TOC}$	Collection date	$\mu\text{M TOC}$	Collection date	$\mu\text{M TOC}$
1-Jun-2013	104.9	14-Jun-2013	84.5	1-Jul-2013	82.8
2-Jun-2013	108.7	15-Jun-2013	117.0	3-Jul-2013	69.46
3-Jun-2013	127.8	16-Jun-2013	108.2	7-Jul-2013	43.33
4-Jun-2013	167.5	20-Jun-2013	131.5	8-Jul-2013	52.17
5-Jun-2013	161.4	21-Jun-2013	104.4	9-Jul-2013	56.12
6-Jun-2013	118.6	24-Jun-2013	64.3	10-Jul-2013	60.67
8-Jun-2013	120.2	25-Jun-2013	81.02	11-Jul-2013	44.49
9-Jun-2013	75.4	26-Jun-2013	86.03	12-Jul-2013	77.09
10-Jun-2013	81.5	28-Jun-2013	79.28	13-Jul-2013	63.76
11-Jun-2013	139.5	29-Jun-2013	92.0		
12-Jun-2013	179.7	30-Jun-2013	98.7		



**Supplementary Figure S1:** ESI-MS abundance of precursor masses across all sampling days.



**Supplementary Figure S2:** Comparison of ESI-MS ion abundances and signals from HRToF-CIMS for similar compounds. The positive ions at (a)  $m/z$  129 and (b, c)  $m/z$  173 represent data from the ESI-MS (green) and the molecular formulae on the left panels of each figure are indicative of measurements from the HRToF-CIMS (black). Right panels show scatter plots.



**Supplementary Figure S3:** Acetate + glycolate production by IC when the ambient SOAS samples are exposed to OH (colored circles). (Acetate and glycolate co-elude.) Acetate formation is seen on some but not all days. Gray circles represent control experiments (June 11 sample + UV, June 11 sample +  $\text{H}_2\text{O}_2$ , June 30 field water blank + OH). The variability of acetic acid formation across all experiment days is 60%.